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MONSTRILLA ELONGATA, A NEW MONSTRILLOID COPEPOD (CRUSTACEA: COPEPODA: MONSTRILLOIDA) FROM A REEF LAGOON OF THE CARIBBEAN COAST OF MEXICO

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Abstract.—A new species of a monstrilloid, *Monstrilla elongata,* is described from plankton samples collected in a reef lagoon along the northern portion of the eastern coast of the Yucatan Peninsula. The new species is described from a single female and can be distinguished from the other species of *Monstrilla* by the combination of the body proportions, a single-lobed fifth leg bearing only two setae, furcal rami with five setae, and the unusual annulated structure of the ovigerous spines.

Monstrilloid copepods are occasional elements in plankton samples, since only the reproductive adult stage is free-living (Davis 1984). Naupliar and juvenile stages of these copepods are parasites of polychaetes and gastropod molluscs (Hartmann 1961, Huys & Boxshall 1991). This group is one of the least known within the Copepoda. The number of known species is relatively small (around 90 nominal species) and several have been described from a single specimen (Davis 1947, 1949; Suárez-Morales & Gasca-Serrano 1992). Valuable, but not comprehensive revisions of the group have been made by Davis (1949) and by Isaac (1975). Only three genera are now recognized, *Monstrilla, Monstrillopsis* and *Thaumaleus* (Huys & Boxshall 1991).

Some previous records of *Monstrilla* in the western tropical Atlantic include: *M. floridana* Davis, 1947, *M. rugosa* Davis, 1947, *M. reticulata* Davis, 1949, *M. helgolandica* Giesbrecht, 1892 and *M. grandis* Giesbrecht, 1891 (Davis 1947, 1949; Isaac 1975, Fish 1962, Reid 1990). Additional records of monstrillids have been stated from material obtained on the northern and central portions of the eastern coast of the Yucatan Peninsula. In these areas, several new species of *Monstrilla* (*M. barbata* Suárez-Moralez & Gasca-Serrano, 1992; *M. reidae* Suárez-Morales, 1993a; *M. rebis* Suárez-Morales, 1993b; *M. mariaeugeniae* Suárez-Morales & Islas-Landeros, 1993) as well as the new species *Monstrillopsis ciqroi* Suárez-Morales, 1993b and *Thaumaleus boxshalli* Suárez-Morales, 1993c have been reported.

During plankton surveys carried out by CIQRO in a reef lagoon located off Puerto Morelos along the northern portion of the Yucatan Peninsula's eastern coast (Suárez & Gasca 1990), one undescribed species of monstrilloid copepod belonging to the genus *Monstrilla* was collected. This species was previously misidentified by Suárez & Gasca (1990) as *Monstrilla leucopis* Sars, 1921.

Monstrilla elongata, new species

Type locality.—Reef lagoon off Puerto Morelos, northern portion of the eastern coast of the Yucatan Peninsula (20°51.40′N; 86°54.15′W). Date of collection 1988 Jan 16. Water column. Over *Thalassia testudinum* beds.

Material examined.—Holotype; female, undissected, deposited in the U. S. National Museum of Natural History, Smithsonian Institution, under number USNM-259488. Paratype; female, undissected, deposited in

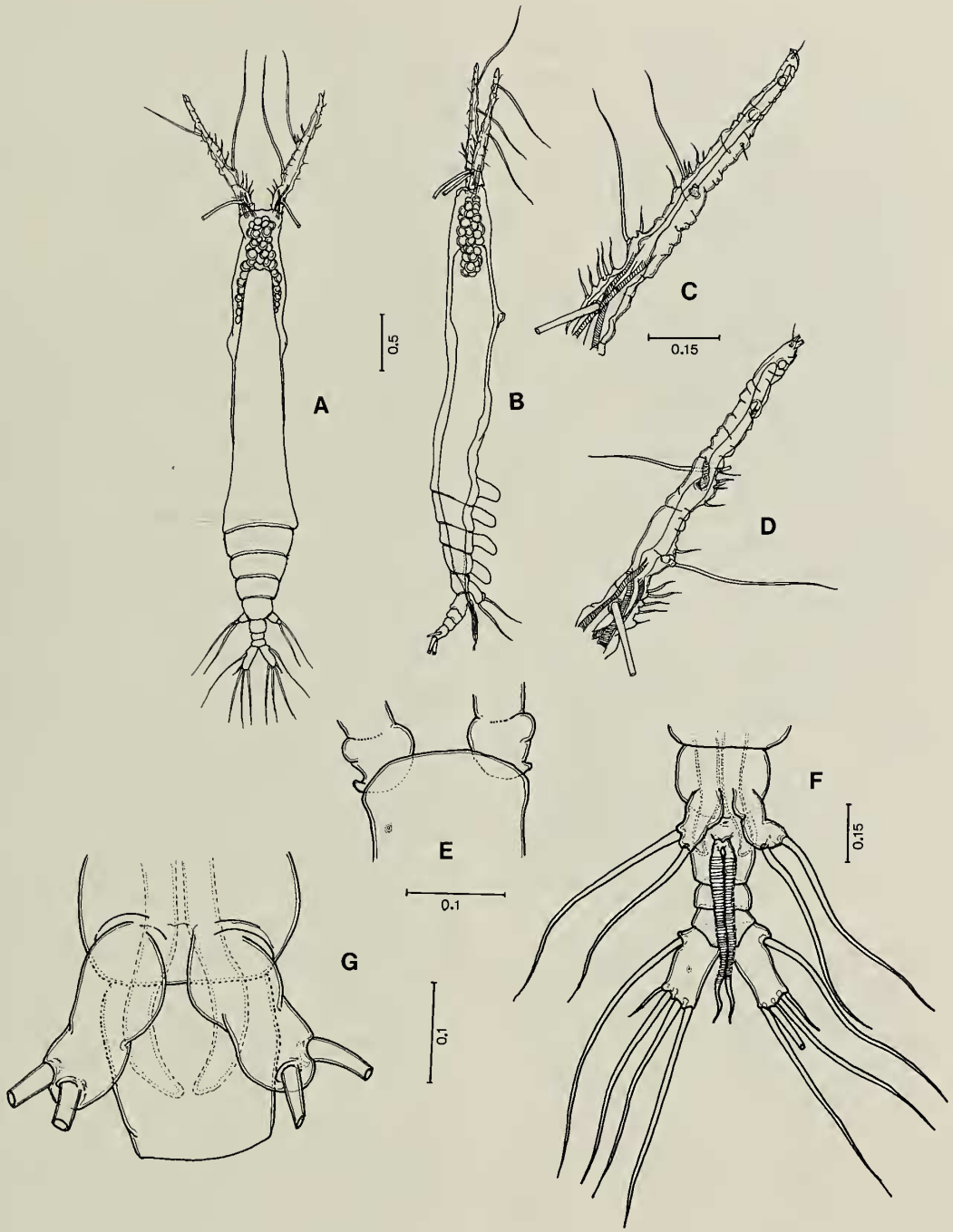

Fig. 1. A. *Monstrilla elongata* n. sp. habitus, dorsal. B. habitus, lateral. C. right antennule, dorsal view. D. left antennule, dorsal view. E. head and first antennular segments. F. urosome, ventral view. G. fifth legs, ventral view.

the same institution under number USNM-259665. Specimens preserved in 70% ethanol. Paratype; female, dissected, author's collection at CIQRO.

Female.—Length 4.2 mm. Cephalic segment long and slender, almost 0.65 of total body length. Oral papilla located 0.43 of way back along cephalic segment. Eyes absent (Figs. 1A, B).

Antennulae 5-segmented, with segments 2–5 partially fused. Antennulae armed with three spines on first segment, and ten spines and six setae on remaining four segments. Three of these setae ripped away, sockets remaining. Large aesthetasc at midlength. Ratio of length of first segment and remainder being: 14:86 = 100 (Figs. 1C, D). Antennulae 0.24 of total body length. First segment with small lateral protuberance on basis, visible in dorsal view (Fig. 1E).

Incorporated first thoracic somite and succeeding three thoracic segments bearing well developed, biramous swimming legs with triarticulated rami (Figs. 2J, K, L). Swimming legs equal in length and armed as follows:

	basis	endopodite	exopodite
leg 1	1-0	0-1; 0-1; 0-1, 1, 3	I-0; 0-1; I, 1, 3
leg 2	0-0	0-1; 0-1; 0-1, 1, 3	I-0; 0-1; I, 1, 4
leg 3	0-0	0-1; 0-1; 0-1, 1, 3	I-0; 0-0; I, 1, 3
leg 4	0-0	0-1; 0-1; 0-1, 1, 3	I-0; 0-1; I, 1, 3

Fifth leg 1-segmented with broad single lobe bearing two setae (Fig. 1G); outer seta slightly longer than inner but both reaching beyond distal end of furcal rami (Fig. 1F).

Urosome consisting of fifth pedigerous somite, genital double and two free abdominal somites (Fig. 2H), length ratio of these 4 segments being: 39.6:33.3:14.6:12.5 = 100. Genital complex with two thick, annulated ovigerous structures, as shown in Fig. 1I. Distal ends of ovigerous structures reaching slightly beyond distal end of furcal rami.

Furcal rami 2.3 times longer than wide, bearing five setae, four of them strongly developed, remaining one being thinner and ⅛ as long as others. One of large setae borne on proximal outer margin, small seta on distal outer margin, remaining three setae terminal.

Male.—unknown.

Etymology.—The specific name makes reference to the unusual proportional length of the cephalic segment.

Discussion

The new species has been assigned to the genus *Monstrilla* on the basis of the presence of two free abdominal somites posterior to the genital double somite, the absence of eyes, and the location of the oral papilla more than 0.25 of the way back along the cephalic segment (Isaac 1975).

Monstrilla elongata differs from all other species of the genus *Monstrilla* in some relevant features. The presence of a single lobe with two setae on the fifth leg is a feature shared with *M. conjunctiva* Giesbrecht, 1902, *M. helgolandica* Claus, 1863, *M. longipes* A. Scott, 1909 and *M. ghardagensis* Al-Kholy, 1963. The structure of the lobe is different in each case; in *M. helgolandica,* it is narrow and bent in the middle (Park 1967, Isaac 1975), but in *M. conjunctiva,* the same structure is broad at base and narrows abruptly (Isaac 1975). *Monstrilla longipes* exhibits a very long and slender fifth leg lobe (Davis 1949, Scott 1909), and in *M. ghardagensis* is short and slender (Al-Kholy 1963). In *M. elongata,* this lobe is broad both at the base and at distal portion, with a slight medial constriction, as shown in Fig. 1G.

The relative length of the antennulae differs in the five species; in *M. conjunctiva,* the antennulae constitute 0.35 of the total body length, this proportion is 0.28 in *M. helgolandica,* 0.19 in *M. ghardagensis,* 0.22 in *M. longipes* and 0.24 in *M. elongata.* Moreover, neither of these species have fused antennular segments, a condition clearly present in *M. elongata.* This feature, however, is not uncommon throughout the genus; in *M. longirenis* Giesbrecht, 1892,

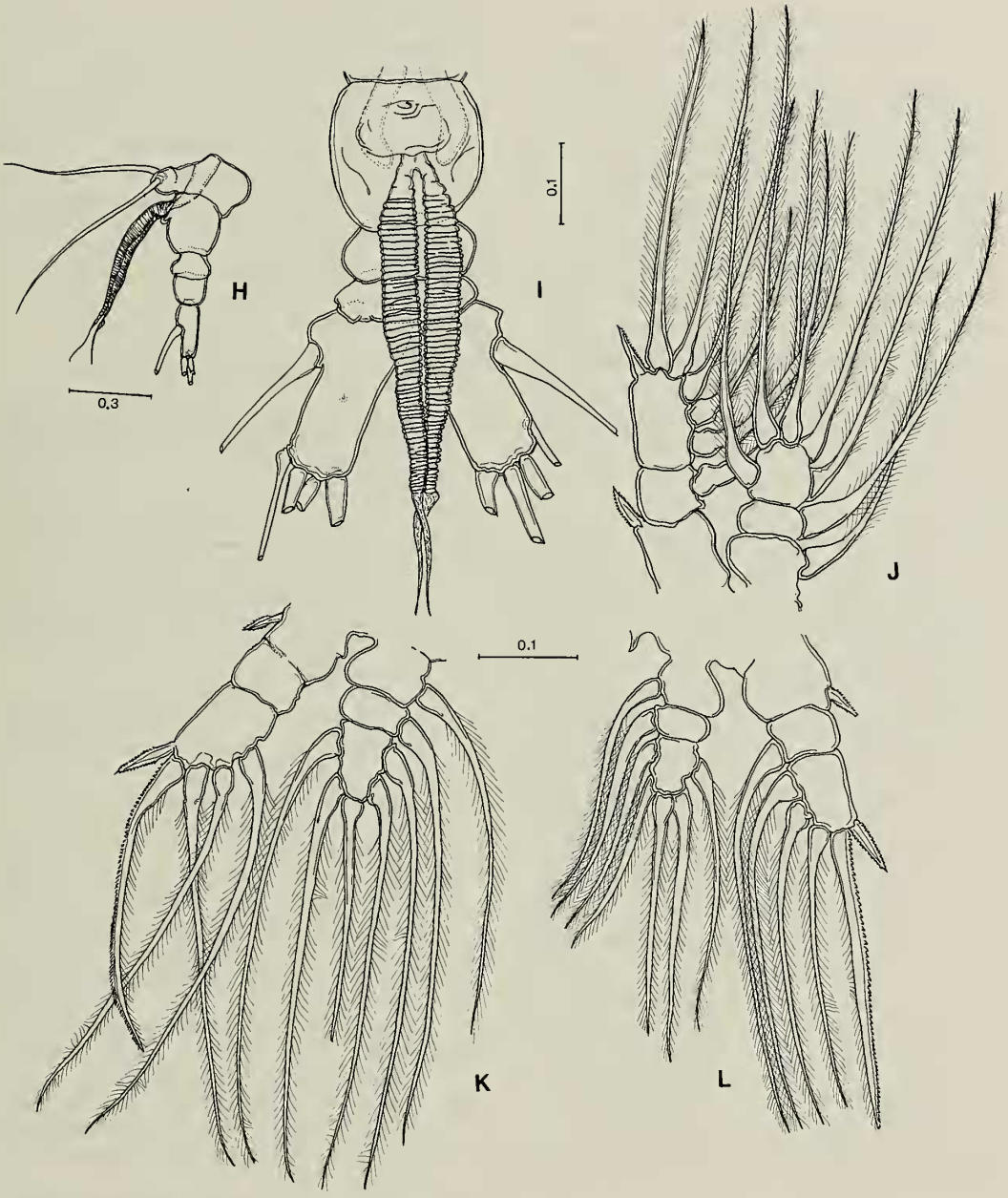

Fig. 2. H. urosome, lateral view. I. genital segment with ovigerous structures, and furcal rami. J. second leg. K. third leg. L. first leg.

only the proximal segment is clearly defined, and in *M. grandis* Giesbrecht, 1891, only the first two segments are separated.

The presence of a spine on the medial side of the basis of the first legs is another distinctive feature of *M. elongata* when comparing it with *M. helgolandica, M. longipes* and *M. ghardagensis.* It is only present in a few other monstrilloids (Grygier, pers. comm.). Furthermore, *M. elongata* differs

from *M. helgolandica, M. longipes* and *M. ghardagensis* in the number of furcal setae, six in *M. helgolandica* and *M. longipes,* and four in *M. ghardagensis,* but only five in the new species. *Monstrilla conjunctiva* also has five furcal seta, with the same arrangement found in *M. elongata* (Sewell 1949).

In both *M. helgolandica* and *M. conjunctiva,* the genital double somite is at least 1.5 times longer than the free abdomen (Sewell 1949, Isaac 1975). It is shorter in *M. longipes.* In *M. elongata* and in *M. ghardagensis,* the genital somite is almost the same length as the free abdomen. The structure of the genital complex is also different in these species. In *M. helgolandica, M. ghardagensis* and in *M. conjunctiva,* the ovigerous spines are long and slender, reaching beyond the distal end of the furcal rami (Sewell 1949). The structure of the genital complex or of the ovigerous spines are not described in the original description of *M. longipes* (Scott 1909). In *M. elongata,* the ovigerous structure is broader and shorter, and is not slender, but exhibits a thick, annulated aspect. The same type of structure has also been found for *M. mariaeugeniae* from the same locality (Suárez-Morales & Islas-Landeros 1993). These kind of apparently undeveloped genital structures can not be related to copepodids or other immature stages since the development of monstrilloids takes place up to the fully mature adult within the host, and the adult burrows out of the host as a planktic form (Davis 1984).

Finally, measuring 4.2 mm, the new species is clearly larger than *M. conjunctiva* (3.3–3.8 mm), *M. longipes* (1.83 mm), *M. ghardagensis* (1.35 mm) and *M. helgolandica* (1.4–2.3 mm). It is also is one of the largest species of the genus, after *M. mariaeugeniae* (4.4 mm) and *M. clavata* (4.5 mm).

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Literature Cited

Al-Kholy, A. A. 1963. Some semi-parasitic Copepoda from the Red Sea.—Publications of the Marine Biological Station, al-Ghardaqa (Red Sea) 12:127–136.

Davis, C. C. 1947. Two monstrilloids from Biscayne Bay, Florida.—Transactions of the American Microscopical Society 66:390–395.

———. 1949. A preliminary revision of the Monstrilloida, with descriptions of two new species.—Transactions of the American Microscopical Society 68:245–255.

———. 1984. Planktonic Copepoda (including Monstrilloida). Pp. 67–91 *in* K. A. Steidinger & L. M. Walker, eds., Marine plankton life cycles strategies. CRC Press, Florida.

Fish, A. G. 1962. Pelagic copepods from Barbados.—Bulletin of Marine Science of the Gulf and Caribbean 12:1–38.

Giesbrecht, W. 1892. Systematic und faunistik der pelagischen Copepoden des Golfes von Neapel und der angrenzenden Meeres-Abschnitte.—Fauna und Flora Golfes Neapel 19:1–831.

Hartmann, O. 1961. A new monstrillid copepod parasitic in capitellid polychaetes in southern California.—Zoologische Anzeigen 167:325–334.

Huys, R., & G. Boxshall. 1991. Copepod evolution. The Ray Society, London, 468 pp.

Isaac, M. J. 1975. Copepoda. Sub-Order: Monstrilloida. Conseil International pour L'exploration de la Mer, Fiche Identification Zooplankton 144/145, pp. 1–10.

Sewell, R. B. S. 1949. The littoral and semi-parasitic Cyclopoida, the Monstrilloida and Notodelphyoida.—Scientific Reports of the John Murray Expedition 1933–34. 9:17–199.

Reid, J. W. 1990. Continental and coastal free-living Copepoda (Crustacea) of Mexico, Central America and the Caribbean region. Pp. 175–214 *in* D. Navarro L. & J. G. Robinson, eds., Diversidad Biológica en la Reserva de la Biosfera de Sian Ka'an Quintana Roo, Mexico. CIQRO/Univ. of Florida. Chetumal, México.

Scott, A. 1909. The Copepoda of the Siboga Expedition. Part I. Free-swimming, littoral and semiparasitic Copepoda.—Siboga Expeditie 29:323 pp. + 69 pls.

Suárez, E., & R. Gasca. 1990. Variación dial del zooplancton asociado a praderas de *Thalassia testudinum* en una laguna arrecifal del Caribe Mexicano.—Universidad y Ciencia 7:57–64.

Suárez-Morales, E. 1993a. *Monstrilla reidae*, a new species of monstrilloid copepod from the Caribbean Sea off Mexico.—Bulletin of Marine Science 52:717–720.

———. 1993b. Two new monstrilloids (Copepoda: Monstrilloida) from the eastern coast of the Yucatan Peninsula.—Journal of Crustacean Biology 13:349–356.

———. 1993c. A new species of *Thaumaleus* (Copepoda: Monstrilloida) from the Eastern coast of the Yucatan Peninsula.—Crustaceana 64:85–89.

———, & R. Gasca-Serrano. 1992. A new species of *Monstrilla* (Copepoda: Monstrilloida) from mexican coasts of the Caribbean Sea.—Crustaceana 63:301–305.

———, & M. E. Islas-Landeros. 1993. A new species of *Monstrilla* (Copepoda: Monstrilloida) from a reef lagoon off the Mexican coast of the Caribbean Sea.—Hydrobiologia (in press).

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